IN THE SPECIFICATION:

Please replace the paragraph at page 1, lines 5-16 of the specification with the following paragraph:

This patent application claims the benefit of U.S. Provisional Application serial number 60/305,218, filed July 13, 2001, which is incorporated herein by reference in its entirety , and U.S. Provisional Application serial number 60/327,551, filed October 2, 2001, which is also incorporated herein by reference in its entirety. This patent application is related to simultaneously filed U.S. Patent Application No. ~~XXXXXX~~ 10/043,700, filed ~~XXXX~~ January 11, 2002, (Attorney Docket No. PU010148) entitled MULTI-MODE BIDIRECTIONAL COMMUNICATIONS DEVICE INCLUDING A DIPLEXER HAVING A SWITCHABLE NOTCH FILTER; and U.S. Patent Application No. ~~XXXXXX~~ 10/043,497, filed ~~XXXX~~ January 11, 2002, (Attorney Docket No. PU010223) entitled MULTI-MODE DOWNSTREAM SIGNAL PROCESSING IN A BI-DIRECTIONAL COMMUNICATIONS DEVICE, both of which are incorporated herein by reference in their entireties.

Please replace the paragraph at page 1, lines 19-21 of the specification with the following paragraph:

The present invention relates to diplexers. More particularly, the invention relates to a single diplexer suitable for use in multiple standard systems such as both the North American Data Over Cable Service Interface Specifications (DOCSIS®) and the European DOCSIS® standards.

Please replace the paragraph at page 1, lines 24-30 of the specification with the following paragraph:

Bi-directional communication devices, such as cable modems, have been designed to specifically operate under a single standard, such as the North American Data Over Cable

Service Interface Specifications (DOCSIS®) or the European DOCSIS® standards. The European version of the North American DOCSIS® standard was not available when DOCSIS® was first proposed to European customers. Many European cable operators started deploying the North American DOCSIS® standard. They now express the need to change to a European DOCSIS®-compliant system.

Please replace the paragraph at page 1, line 31 to page 2, line 12 of the specification with the following paragraph:

There are three main differences between a European DOCSIS® cable modem and a North American DOCSIS® cable modem. First, a diplexer within the cable modem has a different cross over point in the European and North American systems, since the forward (downstream) and the return (upstream) data channel bandwidths on the coax cable are slightly different. This difference in diplexer crossover point is realized by different high pass filter and low pass filter cutoff frequencies between the European and North American systems. Second, the forward data channel is 8 MHz wide for European DOCSIS®, while in the North American DOCSIS® the forward data channel is 6 MHz wide. This requires a different surface acoustic wave (SAW) filter to maximize performance when additional channels are located next to the desired channel without any guard band. Third, the forward data channel for the European DOCSIS® uses a different forward error correction (FEC) scheme than is used in the North American DOCSIS®. Providing a single cable modem that could operate under both the North American and European standard systems would reduce the costs for the manufacturers, re-sellers, and renters by economy of scale.

Please replace the paragraph at page 3, line 22 to page 4, line 6 of the specification with the following paragraph:

While the invention will be primarily described within the context of a cable modem in a data communications system, it will be appreciated by those skilled in the art that other multi-mode/standard, bi-directional communications devices, such as a satellite terminal, a

digital subscriber line (DSL) modem, and the like may benefit from the present invention. According to one embodiment of the invention, a cable modem includes a single diplexer, which is used to facilitate the coupling of, for example, a computer device to a service provider via a cable transport network. In particular, the exemplary cable modem is utilized to provide downstream broadband data signals from the service provider to the computer device. Additionally, the exemplary cable modem is utilized to transfer upstream baseband data signals from the illustrative computer back to the service provider. More specifically, the exemplary cable modem is capable of selectively operating within the different downstream bandwidth constraints under both the North American Data Over Cable Service Interface Specifications (DOCSIS®) and the European DOCSIS® standards, which are incorporated by reference herein in their respective entireties. The cable modem is also capable of selectively passing through upstream data signals in compliance with both the European and North American DOCSIS® standards.

Please replace the paragraph at page 4, lines 21-24 of the specification with the following paragraph:

The service provider 160 provides the data over the cable transport network 150. In one embodiment, the cable transport network 150 is a conventional bi-directional hybrid fiber-coax cable network, such as specified under the North American or European DOCSIS® standards.

Please replace the paragraph at page 5, lines 12-18 of the specification with the following paragraph:

The diplexer 130 is coupled to the upstream and downstream processing circuitry 106 and 108. The high-pass filter HPF 132 passes the downstream data signals to the downstream processing circuitry 108 and the low-pass filters LPF1 and LPF2 136 and 134 receive return signals (e.g., user requests) from the upstream processing circuitry 106. As discussed above, the LPF1 136 is illustratively switched on during operation under the European DOCSIS

standard, while the LPF2 134 is illustratively switched on during operation under the North American DOCSIS® standard.

Please replace the paragraph at page 5, lines 19-32 of the specification with the following paragraph:

The downstream processing circuitry 108 comprises the tuner 112, a demodulator 118, which is selectively coupled to the tuner 112 through a first surface acoustic wave (SAW) filter 114 or through a second SAW filter 116, and other support circuitry 115, such as voltage regulators, amplifiers, and the like. The tuner 112 may illustratively be model type DIT9210, manufactured by Thomson Consumer Electronics, Inc. When operating under the European DOCSIS® mode, the first SAW filter 114 provides an IF signal having an 8MHz bandwidth to the demodulator 118, which operates within the requirements under the ITU J.83 Annex A standard. Alternately, when operating under the North American DOCSIS® mode, the second SAW filter 116 provides an IF signal having a 6MHz bandwidth to the demodulator 118, which then operates within the requirements under the ITU J.83 Annex B standard. Although, the illustrative embodiment depicts a single demodulator 118, one skilled in the art will recognize that separate modulators operating under the ITU J.83 Annex A and B standards may alternately be utilized.

Please replace the paragraph at page 6, line 31 to page 7, line 6 of the specification with the following paragraph:

When operating under the North American DOCSIS® standard, the exemplary second SAW filter 116 provides a 44MHz centered IF signal having a 6MHz bandwidth to the demodulator 118, where the demodulator 118 extracts the baseband signal(s) therein. Similarly, when operating under the European DOCSIS® standard, the exemplary first SAW filter 114 provides a 36.125 MHz centered IF signal having an 8MHz bandwidth to the demodulator 118, where the demodulator 118 extracts the baseband signal(s) therein. In any

case, the baseband signals are sent to the media access controller (MAC) 124 for subsequent transport to the computer device.

Please replace the paragraph at page 7, lines 18-30 of the specification with the following paragraph:

FIG. 2 depicts a block diagram of a diplexer 130 according to the present invention. A high-pass filter 132 is coupled between a first signal port 206_1 and a second signal port 206_2. The high-pass filter 132 provides an RF frequency path to the downstream processing circuitry 108 from the cable transport network 150, as discussed above. Additionally, first and second low-pass filters LPF1 136 and LPF2 134 are coupled between the first signal port 206_1 and a third signal port 206_3. The two low-pass filters LPF1 136 and LPF2 134 are independently selected, via switches 202 and 204, to alternately provide an RF frequency path from the upstream processing circuitry 106 to the cable transport network 150. For example, LPF1 136 of the diplexer 130 is illustratively selected when the cable modem 102 is serially connected to a computer device 104 operating under the European DOCSIS® standard. Alternately, LPF2 134 of the diplexer 130 is selected when the cable modem 102 is operating under the North American DOCSIS® standard.

Please replace the paragraph at page 8, lines 4-14 of the specification with the following paragraph:

Referring to FIGS. 2 and 3 together, it can be seen that the high-pass filter HPF 132 passes RF signals having a frequency greater than 88MHz. Under the North American DOCSIS® standard, the downstream data signals are transmitted at a frequency greater than 88MHz, while under the European DOCSIS® standard the downstream data signals are transmitted at a frequency greater than 110MHz. In this case, only a single high-pass filter HPF 132 is utilized in the diplexer 130. Specifically, the HPF 132 passes RF data signals above a frequency of 88MHz. Since all downstream RF signals are above 88Mhz, the single HPF 132 is suitable for passing through such downstream RF data signals for further

processing in the cable modem 102 under both the North American and European DOCSIS® standards. The HPF response curve 306 in FIG. 3 illustratively depicts a low-level insertion loss 302 for frequencies greater than 88MHz.

Please replace the paragraph at page 8, lines 15-29 of the specification with the following paragraph:

Under the North American DOCSIS® standard, the upstream data signals are transmitted in a frequency range between 5Mhz and 42MHz, while under the European DOCSIS® standard the upstream data signals are transmitted in a frequency range between 5MHz and 65MHz. In this case, two low-pass filters LPF1 and LPF2 136 and 134 are provided to pass through data signals up to either 65MHz or 42MHz. In particular, the LPF2 low-pass filter 134 illustratively passes through the upstream data signals having a frequency between 5Mhz and 42MHz, as required under the North American DOCSIS® standard. Similarly, the LPF1 low-pass filter 136 illustratively passes through the upstream data signals having a frequency between 5MHz and 65MHz, as required under the European DOCSIS® standard. The LPF1 response curve 308 in FIG. 3 illustratively depicts a low-level insertion loss 302 for frequencies less than 65MHz when operating under the European DOCSIS standard. Furthermore, the LPF2 response curve 310 in FIG. 3 illustratively depicts a low-level insertion loss 302 for frequencies less than 42MHz when operating under the North American DOCSIS® standard.

Please replace the paragraph at page 8, line 30 to page 9, line 10 of the specification with the following paragraph:

Referring to FIG. 2, switches 202 and 204 are schematic representation for selectively coupling and decoupling either the first low-pass filter LPF1 136 or the second low-pass filter LPF2 134, thereby permitting the diplexer 130 to be set for operation under either DOCSIS® standards. In one embodiment, switches 202 and 204 may be electro-mechanical devices (e.g., relays). Preferably, the switches 202 and 204 are digitally operable switches, such as

PIN diodes, transistors, and the like, controlled by a controller, such as a microprocessor, which generates a control voltage or current to activate the switches 202 and 204. For example, when switches 202 and 204 couple the cable transport network 150 to the LPF1 low-pass filter 136, the diplexer 130 is set pass frequencies less than 65MHz, as set forth under the European DOCSIS® standard. Similarly, when switches 202 and 204 couple the cable transport network 150 to the LPF2 low-pass filter 134, the diplexer 130 is set pass frequencies less than 42MHz, as set forth under the North American DOCSIS® standard.

Please replace the paragraph at page 9, lines 11-23 of the specification with the following paragraph:

It is noted that two separate filters (e.g., the low-pass filters LPF1 136 and LPF2 134) are utilized for passing the upstream RF signal, as compared to only a single high-pass filter HPF 132 being utilized to pass downstream RF signals. It is further noted that a single low-pass filter may not be used for both the North American and European cable modems. In particular, there are stringent limits on the energy that can be transmitted upstream in the frequency band above the upstream data band. For example, the low-pass filter for the North American system must have low attenuation for frequencies between 5 and 42 MHz and high attenuation for frequencies above 54 MHz (see response curve 310). The low-pass filter for the European system must have low attenuation for frequencies between 5 and 65 MHz and high attenuation for frequencies above 88 MHz (see response curve 308). The requirements between 54 and 65 MHz are in direct conflict, therefore different responses, and hence, different low-pass filters are required under each DOCSIS® standard.

Please replace the paragraph at page 11, lines 4-18 of the specification with the following paragraph:

FIGS. 4, 5, and 6 depict one of many possible embodiments to implement a multi-mode bi-directional communications device (e.g., cable modem) 102, which can be operated under multiple standards, for example, between the European and North American DOCSIS®

standards. The diplexer 130 utilizes a single high-pass filter HPF 132 to adjust the cutoff frequency of the diplexer's forward (e.g., downstream) channel, and switches between two low-pass filters LPF1 136 and LPF2 134 to adjust the cutoff frequency of the diplexer's return (e.g., upstream) channel. It should be apparent to those skilled in the art and informed by the present disclosure that a novel diplexer for passing RF signals for multi standard data communication systems operating, illustratively, under both the North American and European DOCSIS® standards has been provided. It should also be noted that FIG. 1 depicts the upstream processing circuitry 106, downstream circuitry 108, and media access controller 124 as separate components. However, one skilled in the art will understand that these illustratively distinct components may also be fabricated, for example, as a single integrated circuit (e.g., ASIC) as well.